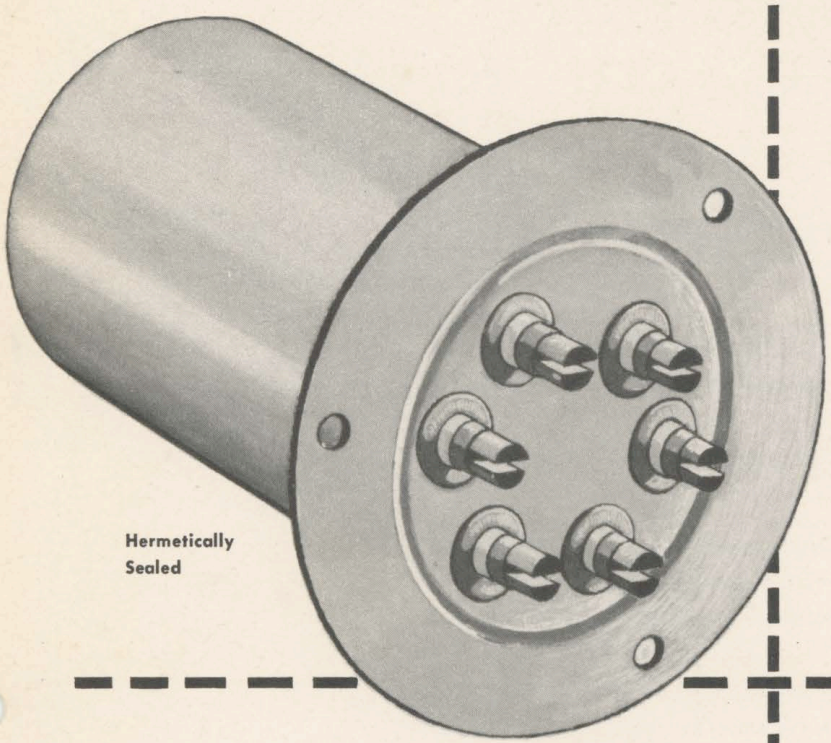
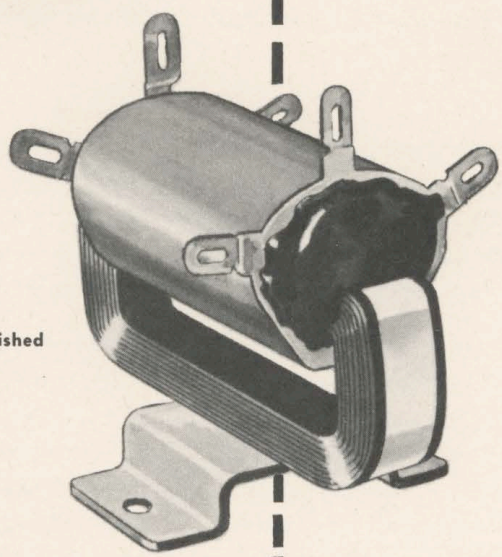
# Marchant "100" Series Low Power Pulse Transformers



Hermetically Sealed



Open Frame (varnished or encapsulated)

MARCHANT Research, Inc.

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OAKLAND 8, CALIFORNIA

A SUBSIDIARY OF MARCHANT CALCULATORS, INC.

# MARCHANT "100" SERIES
# LOW POWER PULSE TRANSFORMERS

Requests for quotations should be accompanied by the following performance data:

1. Input voltage
2. Output voltage
3. Impedance ratio
4. Peak power output
5. Pulse lengths
6. Repetition rate
7. Filament heating current (if secondary is to be wound bifilar for filament heating)
8. Ambient temperature range
9. Mechanical requirements
10. Service specifications to be met, if any

BLOCKING OSCILLATOR TRANSFORMER

| Cat. No. | Radiation Lab. Type No. | Number Turns—Wire Size D. C. Resistance at 25°C (Ohms) | | | | 60 Cycle (rms) Test Voltage | Max. Pulse Voltage | Core Area (Sq. In.) |
|---|---|---|---|---|---|---|---|---|
| | | 1-2 | 3-4 | 5-6 | 7-8 | | | |
| Pt. 103 | 132-BW-2 | 32-#30 .413 | 32-#30 .445 | 32-#30 .477 | 10-3 #30 .053 | 1000 | 1500 | .0822 |
| Pt. 105 | 166-AW-2P | 90-#33 2.32 | 90-#33 2.46 | 135-#38 12.4 | | 1000 | 1500 | .0822 |
| Pt. 107 | 132-DW-2 | 20-#30 .254 | 20-#30 .282 | 20-#30 .303 | | 1000 | 1500 | .0822 |
| Pt. 110 | 134-CW-2P | 70-#32 1.54 | 140-#38 13.7 | 140-#38 15.2 | | 1000 | 1500 | .0822 |
| Pt. 112 | 132-AW-2P | 32-#30 .413 | 32-#30 .445 | 32-#30 .477 | | 1000 | 1500 | .0822 |
| Pt. 115 | 145-CW-2 | 125-#36 6.27 | 125-#36 6.50 | 125-#36 6.65 | | 1000 | 1500 | .0822 |
| Pt. 117 | 134-BW-2 | 140-#38 12.2 | 140-#38 12.2 | 70-#32 1.72 | 140-#38 13.8 | 1500 | 2500 | .0822 |
| Pt. 120 | 145-EW-2 | 150-#38 12.8 | 150-#38 13.7 | 150-#38 14.8 | | 1000 | 1500 | .0822 |
| Pt. 122 | 134-EW-2 | 50-#34 1.34 | 50-#34 1.57 | 25-2 #34 .453 | | 750 | 1000 | .0313 |
| Pt. 125 | 176-AW-2 | 70-#32 1.50 | 70-#32 1.72 | 140-#38 15.4 | | 1000 | 1500 | .0822 |
| Pt. 127 | 187-AW-2 | 40-2 #32 .410 | 40-2 #32 .435 | 80-#32 1.83 | | 1000 | 1500 | .0822 |
| Pt. 130 | 224-AW-2 | 35-#32 .520 | 35-#32 .607 | 35-#32 .697 | | 750 | 1000 | .0313 |

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## SELECTION OF TRANSFORMER

The maximum flux density calculated in the following equation should not exceed 9000 Gauss:

$$B = \frac{E \times t \times 10^8}{N \times A \times 6.45 \times .90}$$

where: E = peak pulse voltage
t = pulse width in sec.
A = gross core area
N = turns in winding across which E appears

Duty cycle should not exceed .002.

**BLOCKING OSCILLATOR OR REGENERATIVE DRIVER** • Regenerative drivers usually have pulse-shaping networks or LC combinations in the grid circuits and are driven by application of an external trigger pulse. The maximum and minimum pulse widths are determined by the transformer, the maximum being dependent on core saturation and magnetizing current, the minimum on the inductance and capacitance in the entire circuit including the network. Pulse widths between these extremes are determined by the network characteristics.

**TRIGGER OR CURRENT TRANSFORMERS** • Trigger transformers have a small number of primary turns and the secondary has a turns ratio such as to give the required voltage. A resistance of 10-25 ⎓ is placed across the secondary, giving pulses of 30 to 50 volts amplitude, depending on the turns ratio and primary current.

**OUTPUT TRANSFORMERS** • Pulse output transformers are used to obtain maximum energy transfer from source to load. They are made with symetrical windings so that by placing windings in series or parallel, a variety of source and load impedances may be obtained.

**COUPLING TRANSFORMERS** • Coupling transformers are used to transfer or control energy by raising a voltage above a threshold or barrier level, to invert the sign of voltage, to effect d.c. isolation between source and load, and to effect impedance matching between stages in video amplifiers.

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Any of the transformers tabulated in the Technical Data sheets can be used in any of the above-mentioned categories.